

Application No. 10/798,272

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please **AMEND** claims 23, 29, 30 and 31 in accordance with the following:

Claim 1 (Previously Presented): A reproducing apparatus for reproducing contents, the reproducing apparatus comprising:

a storage unit which receives contents including interactive contents and audio visual (AV) contents from a storage medium and/or a distributed network;

a control unit arranged to control reproduction of the interactive contents and AV contents, via a display device, the control unit comprising:

a synchronized multimedia element determining unit, which parses and interprets interactive contents including multimedia elements, determines whether multimedia elements included in the interactive contents are synchronized with the AV contents; and

an application program interface (API) transmitting unit, which transmits an API corresponding to an interactive control command input from a user to an AV contents reproducing engine that reproduces the AV contents and a synchronized multimedia element reproducing engine that reproduces the multimedia elements that are determined to be synchronized with the AV contents by the synchronized multimedia element determining unit, such that the multimedia elements are synchronized and mixed with the AV contents for a visual display on a screen of the display device.

Claim 2 (Previously Presented): The reproducing apparatus of claim 1, wherein the AV contents are digital versatile disk (DVD) contents and the interactive contents are expressed by a markup document and/or are resources referred to in the markup document.

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Claim 3 (Previously Presented): The reproducing apparatus of claim 2, wherein the synchronized multimedia element determining unit parses and interprets the interactive contents that are expressed by the markup document including information about whether the multimedia elements are synchronized with the AV contents, and determines whether the multimedia elements included in the interactive contents are synchronized with the AV contents, and wherein the information included in the markup document to indicate whether the multimedia elements are synchronized with the AV contents are in forms of meta tags, newly defined tags, newly defined attributes, scripts, or binary data.

Claim 4 (Previously Presented): The reproducing apparatus of claim 3, wherein the synchronized multimedia element determining unit comprises:

an interactive contents parsing unit which parses the interactive contents that are expressed by the markup document and creates a document object model (DOM) tree; and
an interactive contents interpreting unit which interprets the DOM tree created by the interactive contents parsing unit and determines whether elements in each node of the created DOM tree are the multimedia elements that are synchronized with the AV contents.

Claim 5 (Previously Presented): The reproducing apparatus of claim 1, wherein the interactive control command input from the user represents a play command, a stop command, a previous screen view command, or a next screen view command, and the synchronized multimedia element reproducing engine represents a plug-in player.

Claim 6 (Previously Presented): The reproducing apparatus of claim 5, wherein the plug-in player represents a media player, a flash player, or a real player.

Claim 7 (Previously Presented): The reproducing apparatus of claim 6, wherein the multimedia elements include audio files, real moving picture files, and animation moving picture files that are reproduced in the media player, the flash player or the real player.

Claim 8 (Previously Presented): The reproducing apparatus of claim 7, wherein the API transmitting unit comprises:

an interactive control command receiving unit which receives the interactive control

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command input from the user that represents the play command, the stop command, the previous screen view command, or the next screen view command; and

an interactive control command corresponding API transmitting unit which transmits the API corresponding to the interactive control command received by the interactive control command receiving unit to the AV contents reproducing engine that reproduces the AV contents and the synchronized multimedia reproducing engine that reproduces the audio files, the real moving picture files, and the animation moving picture files that are determined by the synchronized multimedia element determining unit to be the multimedia elements synchronized with the AV contents.

Claim 9 (Previously Presented): A reproducing apparatus for reproducing interactive contents, the reproducing apparatus comprising:

a contents reading unit which reads AV/interactive contents including audio visual (AV) contents and interactive contents from a storage medium and/or a distributed network; and

a control unit arranged to control reproduction of the interactive contents and AV contents, via a display device, the control unit comprising:

an interactive contents synchronizing unit which determines whether multimedia elements included in the interactive contents are synchronized with the AV contents and transmits an application program interface (API) corresponding to an interactive control command;

an AV contents reproducing engine which receives the API transmitted from the interactive contents synchronizing unit and reproduces the AV contents according to the received API; and

a synchronized multimedia element reproducing engine which receives the API transmitted from the interactive contents synchronizing unit and reproduces the multimedia elements that are determined to be synchronized with the AV contents by the interactive contents synchronizing unit, such that the multimedia elements are synchronized and mixed with the AV contents for a visual display on a screen of the display device.

Claim 10 (Previously Presented): The reproducing apparatus of claim 9, wherein the storage medium represents a DVD read-only-memory (DVD-ROM) or a compact disk ROM (CD-

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ROM), and the distributed network represents the Internet.

Claim 11 (Previously Presented): The reproducing apparatus of claim 10, wherein the interactive contents synchronizing unit parses the interactive contents included in the AV/interactive contents read by the contents reading unit.

Claim 12 (Previously Presented): The reproducing apparatus of claim 10, further comprising a contents buffer which buffers the AV/interactive contents read by the contents reading unit.

Claim 13 (Previously Presented): The reproducing apparatus of claim 12, wherein the interactive contents synchronizing unit parses and interprets the interactive contents included in the AV/interactive contents buffered by the contents buffer and determines whether the multimedia elements included in the interactive contents are synchronized with the AV contents.

Claim 14 (Previously Presented): The reproducing apparatus of claim 9, further comprising a non-synchronized multimedia element reproducing engine which reproduces the multimedia elements that are determined by the interactive contents synchronizing unit not to be synchronized with the AV contents.

Claim 15 (Previously Presented): A method of synchronizing interactive contents, the method comprising:

receiving contents including interactive contents and audio visual (AV) contents from one of a storage medium and a distributed network;

parsing and interpreting the interactive contents, and determining whether multimedia elements included in the interactive contents are synchronized with the AV contents; and

transmitting an application program interface (API) corresponding to an interactive control command to an AV contents reproducing engine that reproduces the AV contents and a synchronized multimedia element reproducing engine that reproduces multimedia elements that are determined to be synchronized with the AV contents, such that the multimedia elements are synchronized and mixed with the AV contents for a visual display on a screen of a display device.

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Claim 16 (Original): The method of claim 15, wherein the AV contents are digital versatile disk (DVD) contents and the interactive contents are expressed by a markup document and/or are resources referred to in the markup document.

Claim 17 (Previously Presented): The method of claim 16, wherein the interactive contents are expressed by a markup document including information about whether the multimedia elements are synchronized with the AV contents, and the information included in the markup document to indicate whether the multimedia elements included in the interactive contents are synchronized with the AV contents are in the forms of meta tags, newly defined tags, newly defined attributes, scripts, or binary data.

Claim 18 (Original): The method of claim 17, wherein the determining whether multimedia elements included in the interactive contents are synchronized with AV contents comprises:
parsing the interactive contents that are expressed by the markup document and creating a document object model (DOM) tree; and
interpreting the DOM tree created by the interactive contents parsing unit and determining whether elements in each node of the created DOM tree are multimedia elements that are synchronized with the AV contents.

Claim 19 (Original): The method of claim 15, wherein the interactive control command is a play command, a stop command, a previous screen view command, or a next screen view command, and the synchronized multimedia element reproducing engine is a plug-in player.

Claim 20 (Previously Presented): The method of claim 19, wherein the plug-in player is a media player, a flash player, or a real player.

Claim 21 (Previously Presented): The method of claim 20, wherein the multimedia elements include audio files, real moving picture files, and animation moving picture files that are reproduced in the media player, the flash player or the real player.

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Claim 22 (Previously Presented): The method of claim 21, wherein the transmitting an API comprises:

receiving the interactive control command that represents the play command, the stop command, the previous screen view command, or the next screen view command from a user; and

transmitting the API corresponding to the received interactive control command to an AV contents reproducing engine that reproduces the AV contents and a synchronized multimedia reproducing engine that reproduces the audio files, the real moving picture files, and the animation moving picture files that are determined to be the multimedia elements synchronized with the AV contents.

Claim 23 (Currently Amended): A method of synchronizing and reproducing interactive contents, the method comprising:

receiving AV/interactive contents including interactive contents and audio visual (AV) contents from a storage medium and/or a distributed network;

determining whether multimedia elements included in the interactive contents are synchronized with audio visual (AV) contents and transmitting an application program interface (API) corresponding to an interactive control command;

receiving the transmitted API and reproducing the AV contents, via an AV contents reproducing engine, according to the received API; and

receiving the transmitted API and reproducing the multimedia elements, via a synchronized multimedia reproducing engine, that are determined to be synchronized with the AV contents, such that the multimedia elements are synchronized and mixed with the AV contents for a visual display on a screen of a display device.

Claim 24 (Previously Presented): The method of claim 23, wherein the storage medium represents a DVD read-only-memory (DVD-ROM) or a compact disk ROM (CD-ROM), and the distributed network represents the Internet.

Claim 25 (Original): The method of claim 24, wherein the determining whether multimedia elements included in the interactive contents are synchronized with AV contents comprises parsing the interactive contents included in the read AV/interactive contents.

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Claim 26 (Previously Presented): The method of claim 24, further comprising buffering the read AV/interactive contents after the AV/interactive contents are received from one of the storage medium and/or the distributed network.

Claim 27 (Original): The method of claim 26, wherein the determining whether multimedia elements included in the interactive contents are synchronized with AV contents comprises parsing and interpreting the interactive contents included in the buffered AV/interactive contents and determining whether the multimedia elements included in the interactive contents are synchronized with the AV contents.

Claim 28 (Original): The method of claim 23, further comprising reproducing multimedia elements that are determined not to be synchronized with the AV contents.

Claim 29 (Currently Amended): A computer readable recording medium having embodied thereon a program which, when executed by a processor of a reproducing apparatus, causes the apparatus to perform ~~for executing a~~ method of synchronizing interactive contents, the method comprising:

receiving contents including interactive contents and audio visual (AV) contents from one of a storage medium and a distributed network;

parsing and interpreting the interactive contents, and determining whether multimedia elements included in the interactive contents are synchronized with audio visual (AV) contents; and

transmitting an application program interface (API) corresponding to an interactive control command to an AV contents reproducing engine that reproduces the AV contents and a synchronized multimedia element reproducing engine that reproduces the multimedia elements that are determined to be synchronized with the AV contents, such that the multimedia elements are synchronized and mixed with the AV contents for a visual display on a screen of a display device.

Claim 30 (Currently Amended): A computer readable recording medium having

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embodied thereon a program which, when executed by a processor of a reproducing apparatus, causes the apparatus to perform for executing a method of synchronizing and reproducing interactive contents, the method comprising:

receiving AV/interactive contents including interactive contents and audio visual (AV) contents from a storage medium and/or a distributed network;

determining whether multimedia elements included in the interactive contents are synchronized with the AV contents and transmitting an application program interface (API) corresponding an interactive control command;

receiving the transmitted API and reproducing the AV contents, via an AV contents reproducing engine, according to the received API; and

receiving the transmitted API and reproducing multimedia elements, via a synchronized multimedia reproducing engine, that are determined to be synchronized with the AV contents, such that the multimedia elements are synchronized and mixed with the AV contents for a visual display on a screen of a display device.

Claim 31 (Currently Amended): A method of synchronizing a data stream performed by a processor of a reproducing apparatus, the method comprising:

receiving a data stream;

parsing the data stream into AV contents and interactive contents;

identifying the interactive contents to correspond to synchronized interactive contents which are synchronized with the AV contents, and non-synchronized interactive contents which are not synchronized with the AV contents;

receiving a navigation control command from a user, via an input device; and

selectively decoding the AV contents and the synchronized interactive contents, via a reproducing engine, based on the identification of the synchronized interactive contents for a visual display on a screen of a display device, such that the AV contents and the synchronized interactive contents are concurrently navigable in response to the navigation control command.

Claim 32 (Original): The method of claim 31, further comprising:
selectively decoding the non-synchronized interactive contents.

Claim 33 (Original): The method of claim 31, wherein the selectively

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decoding comprises utilizing an application program Interface (API) corresponding to the navigation control command to selectively decode the AV contents and the synchronized interactive contents.

Claim 34 (Previously Presented): The method of claim 31, further comprising:
buffering the received data stream to allow more stable reproduction of the AV contents and the interactive contents of the data stream.

Claim 35 (Previously Presented): The method of claim 31, wherein the AV contents are obtained from a digital versatile disc (DVD).

Claim 36 (Original): The method of claim 35, wherein the interactive contents allow users to control the DVD AV contents based on enhanced navigation (ENAV) commands.

Claim 37 (Original): The method of claim 36, wherein the selectively decoding is controlled so that the synchronized interactive contents are navigable in the same way as the AV contents in response to the navigation control command.

Claim 38 (Original): The method of claim 31, wherein the interactive contents comprise a markup document including information that controls the selective decoding of the AV contents and multimedia elements in the interactive contents.

Claim 39 (Original): The method of claim 38, wherein the selectively decoding further comprises:
creating a document object model (DOM) tree from the parsed interactive contents; and
identifying each node of the DOM tree representing the multimedia elements that are synchronized with the AV contents.

Claim 40 (Previously Presented): The method of claim 39, further comprising:
identifying a plug-in player corresponding to the multimedia elements that are synchronized with the AV contents,

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wherein the plug-in player is used to selectively decode the multimedia elements that are synchronized with the AV contents.